

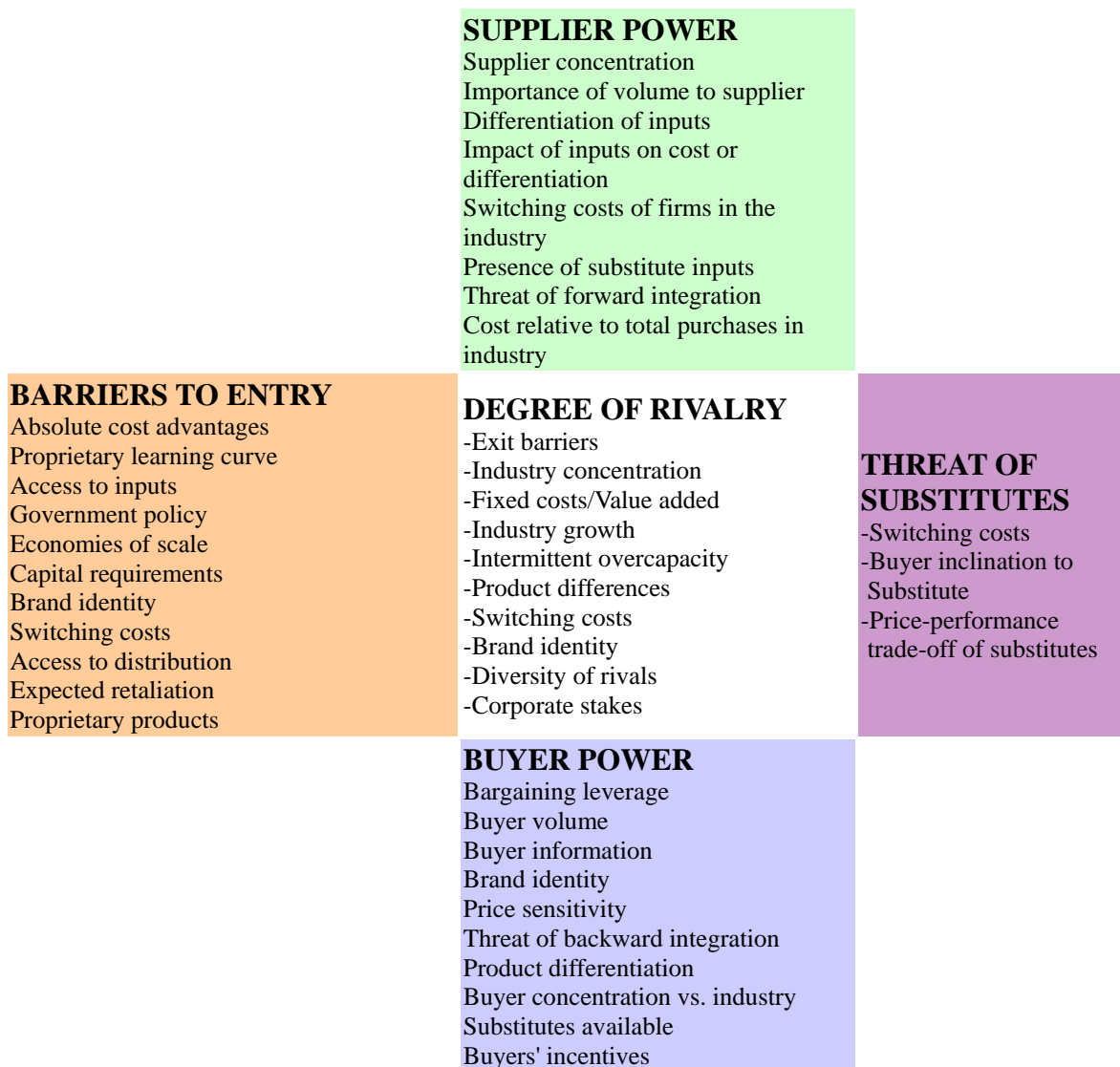
Porter's Five Forces

A MODEL FOR INDUSTRY ANALYSIS

The model of pure competition implies that risk-adjusted rates of return should be constant across firms and industries. However, numerous economic studies have affirmed that different industries can sustain different levels of profitability; part of this difference is explained by industry structure.

Michael Porter provided a framework that models an industry as being influenced by five forces. The strategic business manager seeking to develop an edge over rival firms can use this model to better understand the industry context in which the firm operates.

Diagram of Porter's 5 Forces



I. Rivalry

In the traditional economic model, competition among rival firms drives profits to zero. But competition is not perfect and firms are not unsophisticated passive price takers. Rather, firms strive for a [competitive advantage](#) over their rivals. The intensity of rivalry among firms varies across industries, and strategic analysts are interested in these differences.

Economists measure rivalry by indicators of [industry concentration](#). The Concentration Ratio (CR) is one such measure. The Bureau of Census periodically reports the CR for major Standard Industrial Classifications (SIC's). The CR indicates the percent of [market share](#) held by the four largest firms (CR's for the largest 8, 25, and 50 firms in an industry also are available). A high concentration ratio indicates that a high concentration of market share is held by the largest firms - the industry is concentrated. With only a few firms holding a large market share, the competitive landscape is less competitive (closer to a monopoly). A low concentration ratio indicates that the industry is characterized by many rivals, none of which has a significant market share. These *fragmented* markets are said to be competitive. The concentration ratio is not the only available measure; the trend is to define industries in terms that convey more information than distribution of market share.

If rivalry among firms in an industry is low, the industry is considered to be disciplined. This discipline may result from the industry's history of competition, the role of a leading firm, or informal compliance with a generally understood code of conduct. Explicit *collusion* generally is illegal and not an option; in low-rivalry industries competitive moves must be constrained informally. However, a maverick firm seeking a competitive advantage can displace the otherwise disciplined market. When a rival acts in a way that elicits a counter-response by other firms, rivalry intensifies. The intensity of rivalry commonly is referred to as being cutthroat, intense, moderate, or weak, based on the firms' aggressiveness in attempting to gain an advantage.

In pursuing an advantage over its rivals, a firm can choose from several competitive moves:

- Changing prices - raising or lowering prices to gain a temporary advantage.
- Improving product differentiation - improving features, implementing innovations in the manufacturing process and in the product itself.
- Creatively using channels of distribution - using [vertical integration](#) or using a distribution channel that is novel to the industry. For example, with high-end jewelry stores reluctant to carry its watches, Timex moved into drugstores and other non-traditional outlets and cornered the low to mid-price watch market.
- Exploiting relationships with suppliers - for example, from the 1950's to the 1970's Sears, Roebuck and Co. dominated the retail household appliance market. Sears set high quality standards and required suppliers to meet its demands for product specifications and price.

The intensity of rivalry is influenced by the following industry characteristics:

1. **A larger number of firms** increases rivalry because more firms must compete for the same customers and resources. The rivalry intensifies if the firms have similar market share, leading to a struggle for market leadership.
2. **Slow market growth** causes firms to fight for market share. In a growing market, firms are able to improve revenues simply because of the expanding market.
3. **High fixed costs** result in an economy of scale effect that increases rivalry. When total costs are mostly fixed costs, the firm must produce near capacity to attain the lowest unit costs. Since the firm must sell this large quantity of product, high levels of production lead to a fight for market share and results in increased rivalry.
4. **High storage costs or highly perishable products** cause a producer to sell goods as soon as possible. If other producers are attempting to unload at the same time, competition for customers intensifies.
5. **Low switching costs** increases rivalry. When a customer can freely switch from one product to another there is a greater struggle to capture customers.
6. **Low levels of product differentiation** is associated with higher levels of rivalry. Brand identification, on the other hand, tends to constrain rivalry.
7. **Strategic stakes are high** when a firm is losing market position or has potential for great gains. This intensifies rivalry.
8. **High exit barriers** place a high cost on abandoning the product. The firm must compete. High exit barriers cause a firm to remain in an industry, even when the venture is not profitable. A common exit barrier is asset specificity. When the plant and equipment required for manufacturing a product is highly specialized, these assets cannot easily be sold to other buyers in another industry. Litton Industries' acquisition of Ingalls Shipbuilding facilities illustrates this concept. Litton was successful in the 1960's with its contracts to build Navy ships. But when the Vietnam war ended, defense spending declined and Litton saw a sudden decline in its earnings. As the firm restructured, divesting from the shipbuilding plant was not feasible since such a large and highly specialized investment could not be sold easily, and Litton was forced to stay in a declining shipbuilding market.
9. **A diversity of rivals** with different cultures, histories, and philosophies make an industry unstable. There is greater possibility for mavericks and for misjudging rival's moves. Rivalry is volatile and can be intense. The hospital industry, for example, is populated by hospitals that historically are community or charitable institutions, by hospitals that are associated with religious organizations or universities, and by hospitals that are for-profit enterprises. This mix of philosophies about mission has lead occasionally to fierce local struggles by hospitals over who will get expensive diagnostic and

therapeutic services. At other times, local hospitals are highly cooperative with one another on issues such as community disaster planning.

10. **Industry Shakeout.** A growing market and the potential for high profits induces new firms to enter a market and incumbent firms to increase production. A point is reached where the industry becomes crowded with competitors, and demand cannot support the new entrants and the resulting increased supply. The industry may become crowded if its growth rate slows and the market becomes saturated, creating a situation of excess capacity with too many goods chasing too few buyers. A shakeout ensues, with intense competition, price wars, and company failures.

BCG founder Bruce Henderson generalized this observation as the Rule of Three and Four: a stable market will not have more than three significant competitors, and the largest competitor will have no more than four times the market share of the smallest. If this rule is true, it implies that:

- If there is a larger number of competitors, a shakeout is inevitable
- Surviving rivals will have to grow faster than the market
- Eventual losers will have a negative cash flow if they attempt to grow
- All except the two largest rivals will be losers
- The definition of what constitutes the "market" is strategically important.

Whatever the merits of this rule for stable markets, it is clear that market stability and changes in supply and demand affect rivalry. Cyclical demand tends to create cutthroat competition. This is true in the disposable diaper industry in which demand fluctuates with birth rates, and in the greeting card industry in which there are more predictable business cycles.

II. Threat Of Substitutes

In Porter's model, substitute products refer to products in other industries. To the economist, a threat of substitutes exists when a product's demand is affected by the price change of a substitute product. A product's [price elasticity](#) is affected by substitute products - as more substitutes become available, the demand becomes more elastic since customers have more alternatives. A close substitute product constrains the ability of firms in an industry to raise prices.

The competition engendered by a Threat of Substitute comes from products outside the industry. The price of aluminum beverage cans is constrained by the price of glass bottles, steel cans, and plastic containers. These containers are substitutes, yet they are not rivals in the aluminum can industry. To the manufacturer of automobile tires, tire retreads are a substitute. Today, new tires are not so expensive that car owners give much consideration to retreading old tires. But in the trucking industry

new tires are expensive and tires must be replaced often. In the truck tire market, retreading remains a viable substitute industry. In the disposable diaper industry, cloth diapers are a substitute and their prices constrain the price of disposables. While the threat of substitutes typically impacts an industry through price competition, there can be other concerns in assessing the threat of substitutes. Consider the substitutability of different types of TV transmission: local station transmission to home TV antennas via the airways versus transmission via cable, satellite, and telephone lines. The new technologies available and the changing structure of the entertainment media are contributing to competition among these substitute means of connecting the home to entertainment. Except in remote areas it is unlikely that cable TV could compete with free TV from an aerial without the greater diversity of entertainment that it affords the customer.

III. Buyer Power

The power of buyers is the impact that customers have on a producing industry. In general, when buyer power is strong, the relationship to the producing industry is near to what an economist terms a **monopsony** - a market in which there are many suppliers and one buyer. Under such market conditions, the buyer sets the price. In reality few pure monopsonies exist, but frequently there is some asymmetry between a producing industry and buyers. The following tables outline some factors that determine buyer power.

Buyers are Powerful if:	Example
Buyers are concentrated - there are a few buyers with significant market share	DOD purchases from defense contractors
Buyers purchase a significant proportion of output - distribution of purchases or if the product is standardized	Circuit City and Sears' large retail market provides power over appliance manufacturers
Buyers possess a credible backward integration threat - can threaten to buy producing firm or rival	Large auto manufacturers' purchases of tires
Buyers are Weak if:	Example
Producers threaten forward integration - producer can take over own distribution/retailing	Movie-producing companies have integrated forward to acquire theaters
Significant buyer switching costs - products not standardized and buyer cannot easily switch to another product	IBM's 360 system strategy in the 1960's

Buyers are fragmented (many, different) - no buyer has any particular influence on product or price	Most consumer products
Producers supply critical portions of buyers' input - distribution of purchases	Intel's relationship with PC manufacturers

IV. Supplier Power

A producing industry requires raw materials - labor, components, and other supplies. This requirement leads to buyer-supplier relationships between the industry and the firms that provide it the raw materials used to create products. Suppliers, if powerful, can exert an influence on the producing industry, such as selling raw materials at a high price to capture some of the industry's profits. The following tables outline some factors that determine supplier power.

Suppliers are Powerful if:	Example
Credible forward integration threat by suppliers	Baxter International, manufacturer of hospital supplies, acquired American Hospital Supply, a distributor
Suppliers concentrated	Drug industry's relationship to hospitals
Significant cost to switch suppliers	Microsoft's relationship with PC manufacturers
Customers Powerful	Boycott of grocery stores selling non-union picked grapes
Suppliers are Weak if:	Example
Many competitive suppliers - product is standardized	Tire industry relationship to automobile manufacturers
Purchase commodity products	Grocery store brand label products
Credible backward integration threat by purchasers	Timber producers relationship to paper companies
Concentrated purchasers	Garment industry relationship to major department stores
Customers Weak	Travel agents' relationship to airlines

V. Barriers to Entry / Threat of Entry

It is not only incumbent rivals that pose a threat to firms in an industry; the possibility that new firms may enter the industry also affects competition. In theory, any firm should be able to enter and exit a market, and if free entry and exit exists, then profits always should be nominal. In reality, however, industries possess characteristics that protect the high profit levels of firms in the market and inhibit additional rivals from entering the market. These are **barriers to entry**.

Barriers to entry are more than the normal equilibrium adjustments that markets typically make. For example, when industry profits increase, we would expect additional firms to enter the market to take advantage of the high profit levels, over time driving down profits for all firms in the industry. When profits decrease, we would expect some firms to exit the market thus restoring a market equilibrium. Falling prices, or the expectation that future prices will fall, deters rivals from entering a market. Firms also may be reluctant to enter markets that are extremely uncertain, especially if entering involves expensive start-up costs. These are normal accommodations to market conditions. But if firms individually (collective action would be illegal collusion) keep prices artificially low as a strategy to prevent potential entrants from entering the market, such **entry-detering pricing** establishes a barrier.

Barriers to entry are unique industry characteristics that define the industry. Barriers reduce the rate of entry of new firms, thus maintaining a level of profits for those already in the industry. From a strategic perspective, barriers can be created or exploited to enhance a firm's competitive advantage. Barriers to entry arise from several sources:

1. **Government creates barriers.** Although the principal role of the government in a market is to preserve competition through anti-trust actions, government also restricts competition through the granting of monopolies and through regulation. Industries such as utilities are considered natural monopolies because it has been more efficient to have one electric company provide power to a locality than to permit many electric companies to compete in a local market. To restrain utilities from exploiting this advantage, government permits a monopoly, but regulates the industry. Illustrative of this kind of barrier to entry is the local cable company. The franchise to a cable provider may be granted by competitive bidding, but once the franchise is awarded by a community a monopoly is created. Local governments were not effective in monitoring price gouging by cable operators, so the federal government has enacted legislation to review and restrict prices.

The regulatory authority of the government in restricting competition is historically evident in the banking industry. Until the 1970's, the markets that banks could enter were limited by state governments. As a result, most banks were local commercial and retail banking facilities. Banks competed through

strategies that emphasized simple marketing devices such as awarding toasters to new customers for opening a checking account. When banks were deregulated, banks were permitted to cross state boundaries and expand their markets. Deregulation of banks intensified rivalry and created uncertainty for banks as they attempted to maintain market share. In the late 1970's, the strategy of banks shifted from simple marketing tactics to mergers and geographic expansion as rivals attempted to expand markets.

2. **Patents and proprietary knowledge serve to restrict entry into an industry.** Ideas and knowledge that provide competitive advantages are treated as private property when patented, preventing others from using the knowledge and thus creating a barrier to entry. Edwin Land introduced the Polaroid camera in 1947 and held a monopoly in the instant photography industry. In 1975, Kodak attempted to enter the instant camera market and sold a comparable camera. Polaroid sued for patent infringement and won, keeping Kodak out of the instant camera industry.
3. **Asset specificity inhibits entry into an industry.** Asset specificity is the extent to which the firm's assets can be utilized to produce a different product. When an industry requires highly specialized technology or plants and equipment, potential entrants are reluctant to commit to acquiring specialized assets that cannot be sold or converted into other uses if the venture fails. Asset specificity provides a barrier to entry for two reasons: First, when firms already hold specialized assets they fiercely resist efforts by others from taking their market share. New entrants can anticipate aggressive rivalry. For example, Kodak had much capital invested in its photographic equipment business and aggressively resisted efforts by Fuji to intrude in its market. These assets are both large and industry specific. The second reason is that potential entrants are reluctant to make investments in highly specialized assets.
4. **Organizational (Internal) Economies of Scale.** The most cost efficient level of production is termed **Minimum Efficient Scale (MES)**. This is the point at which unit costs for production are at minimum - i.e., the most cost efficient level of production. If MES for firms in an industry is known, then we can determine the amount of market share necessary for low cost entry or cost parity with rivals. For example, in long distance communications roughly 10% of the market is necessary for MES. If sales for a long distance operator fail to reach 10% of the market, the firm is not competitive.

The existence of such an economy of scale creates a barrier to entry. The greater the difference between industry MES and entry unit costs, the greater the barrier to entry. So industries with high MES deter entry of small, start-up businesses. To operate at less than MES there must be a consideration that

permits the firm to sell at a premium price - such as product differentiation or local monopoly.

Barriers to exit work similarly to barriers to entry. Exit barriers limit the ability of a firm to leave the market and can exacerbate rivalry - unable to leave the industry, a firm must compete. Some of an industry's entry and exit barriers can be summarized as follows:

Easy to Enter if there is: <ul style="list-style-type: none">• Common technology• Little brand franchise• Access to distribution channels• Low scale threshold	Difficult to Enter if there is: <ul style="list-style-type: none">• Patented or proprietary know-how• Difficulty in brand switching• Restricted distribution channels• High scale threshold
Easy to Exit if there are: <ul style="list-style-type: none">• Salable assets• Low exit costs• Independent businesses	Difficult to Exit if there are: <ul style="list-style-type: none">• Specialized assets• High exit costs• Interrelated businesses

DYNAMIC NATURE OF INDUSTRY RIVALRY

Our descriptive and analytic models of industry tend to examine the industry at a given state. The nature and fascination of business is that it is not static. While we are prone to generalize, for example, list GM, Ford, and Chrysler as the "Big 3" and assume their dominance, we also have seen the automobile industry change.

Currently, the entertainment and communications industries are in flux. Phone companies, computer firms, and entertainment are merging and forming strategic alliances that re-map the information terrain. Schumpeter and, more recently, Porter have attempted to move the understanding of industry competition from a static economic or industry organization model to an emphasis on the interdependence of forces as dynamic, or *punctuated equilibrium*, as Porter terms it.

In Schumpeter's and Porter's view the dynamism of markets is driven by innovation. We can envision these forces at work as we examine the following changes:

Top 10 US Industrial Firms by Sales 1917 - 1988

	1917	1945	1966	1983	1988
1	US Steel	General Motors	General Motors	Exxon	General Motors
2	Swift	US Steel	Ford	General Motors	Ford
3	Armour	Standard Oil -NJ	Standard Oil -NJ (Exxon)	Mobil	Exxon
4	American Smelting	US Steel	General Electric	Texaco	IBM
5	Standard Oil –NJ	Bethlehem Steel	Chrysler	Ford	General Electric
6	Bethlehem Steel	Swift	Mobil	IBM	Mobil
7	Ford	Armour	Texaco	Socal (Oil)	Chrysler
8	DuPont	Curtiss-Wright	US Steel	DuPont	Texaco
9	American Sugar	Chrysler	IBM	Gulf Oil	DuPont
10	General Electric	Ford	Gulf Oil	Standard Oil of Indiana	Philip Morris

10 Largest US Firms by Assets, 1909 and 1987

	1909	1987
1	US STEEL	GM (Not listed in 1909)
2	STANDARD OIL, NJ (Now, EXXON #3)	SEARS (1909 = 45)
3	AMERICAN TOBACCO (Now, American Brands #52)	EXXON (Standard Oil trust broken up in 1911)
4	AMERICAN MERCANTILE MARINE (Renamed US Lines; acquired by Kidde, Inc., 1969; sold to McLean Industries, 1978; bankruptcy, 1986)	IBM (Ranked 68, 1948)
5	INTERNATIONAL HARVESTER (Renamed Navistar #182); divested farm equipment	FORD (Listed in 1919)
6	ANACONDA COPPER (acquired by ARCO in 1977)	MOBIL OIL
7	US LEATHER (Liquidated in 1935)	GENERAL ELECTRIC (1909= 16)
8	ARMOUR (Merged in 1968 with General Host; in 1969 by Greyhound; 1983 sold to ConAgra)	CHEVRON (Not listed in 1909)
9	AMERICAN SUGAR REFINING (Renamed AMSTAR. In 1967 =320) Leveraged buyout and sold in pieces)	TEXACO (1909= 91)
10	PULLMAN, INC (Acquired by Wheelabrator Frye, 1980; spun-off as Pullman-Peabody, 1981; 1984 sold to Trinity Industries)	DU PONT (1909= 29)

GENERIC STRATEGIES TO COUNTER THE FIVE FORCES

Strategy can be formulated on three [levels](#):

- corporate level
- business unit level
- functional or departmental level.

The business unit level is the primary context of industry rivalry. Michael Porter identified three [generic strategies](#) (*cost leadership*, *differentiation*, and *focus*) that can be implemented at the business unit level to create a competitive advantage. The proper generic strategy will position the firm to leverage its strengths and defend against the adverse effects of the five forces.

Recommended Reading

Porter, Michael E., [Competitive Strategy](#): *Techniques for Analyzing Industries and Competitors*

Competitive Strategy is the basis for much of modern business strategy. In this classic work, Michael Porter presents his five forces and generic strategies, then discusses how to recognize and act on market signals and how to forecast the evolution of industry structure. He then discusses competitive strategy for emerging, mature, declining, and fragmented industries. The last part of the book covers strategic decisions related to vertical integration, capacity expansion, and entry into an industry. The book concludes with an appendix on how to conduct an industry analysis.